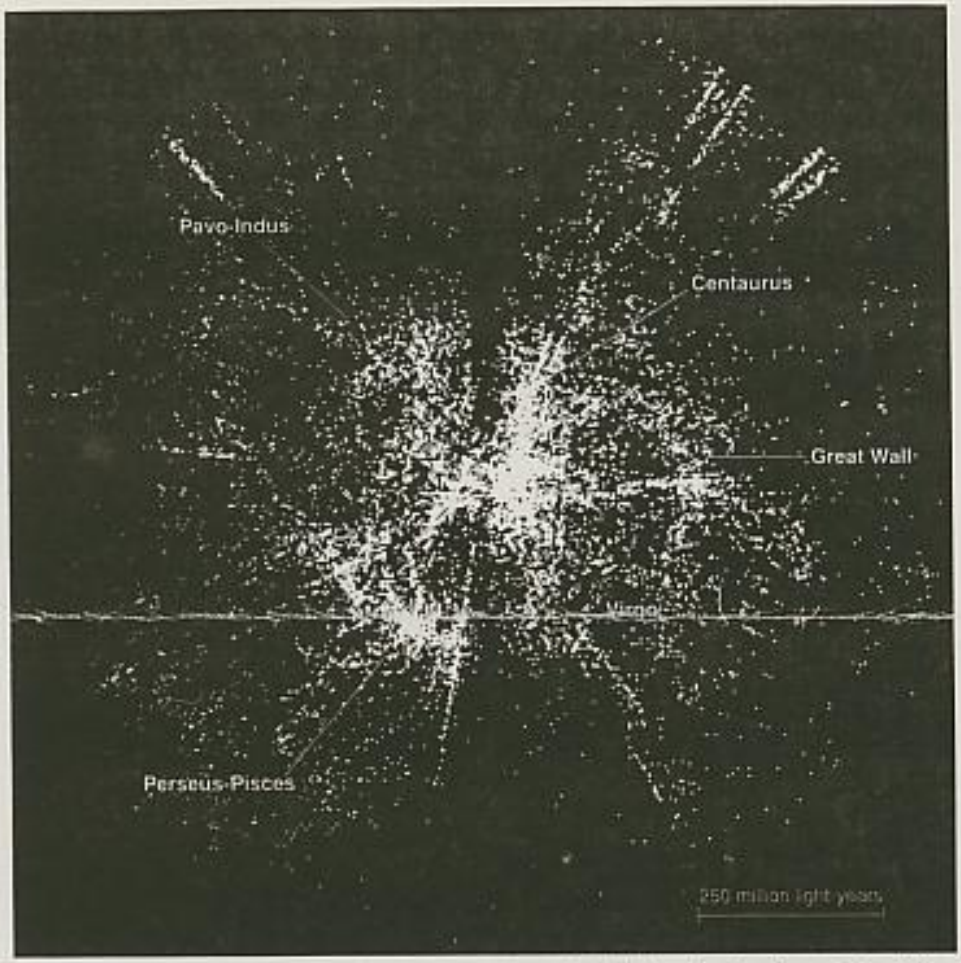

Surrounding the Virgo Cluster is a cocoon-shaped shell of galaxies about 650 million light-years across — the largest structure yet known in the universe. A team of French astronomers mapped the locations of more than 24,000 galaxies to produce this plot, which includes the "Great Wall" discovered in 1989. Courtesy Georges Paturel and Hélène Di Nella.

It Doesn't Get Any Bigger Than This

What kind of large-scale structure exists in the universe? Are galaxies really arrayed in great sheets wrapped around giant voids? If so, how did such features form? In an attempt to answer these challenging questions, a team of French astronomers led by Georges Paturel (Lyon Observatory) has mapped more than 24,000 galaxies over the whole sky to a distance of 650 million light-years.

When the location of each galaxy is plotted in three dimensions, a striking pattern emerges. A giant shell of galaxies stretches more than 650 million light-years around, roughly centered on the Local Supercluster of which the Milky Way is a part. Writing in the French journal *Comptes Rendus* for June 16th, the team admits they do not yet understand how and why this structure formed but are glad to have confirmed long-held suspicions that it exists.

Although astronomers expected that the shell would be more or less spherical, a three-dimensional visualization reveals more of a squashed ellipsoid, or "cocoon." It is currently the largest known structure in the universe, incorporating the "Great Wall" of galaxies discovered in 1989 as well as many other previously known large-scale configurations of galaxies.